

PRECIPITATION.

[In inches and hundredths.]

The distribution of precipitation over the United States and Canada for February, 1894, as determined by reports from about 2,000 stations, is exhibited on Chart III. In Tables I, II, and III, the total precipitation is given for each station; the departures from the normal are given for regular stations of the Weather Bureau in Table I. The figures opposite the names of the geographical districts in the columns for precipitation and departure from the normal show, respectively, the averages for the several districts. The normal for any district may be found by adding the departure to the current mean when the precipitation is below the normal and subtracting when above. The average departure for each State is given in the chapter of reports from the State Weather Services.

NORMAL PRECIPITATION.

The normal precipitation for the month of February is usually greatest on the coasts of Washington and Oregon, where it exceeds 8.00. The average for all the Atlantic States is about 4.00; for the Ohio Valley about 3.00; for the Lake region, 2.00; and for the rest of the interior about 1.00 or 2.00.

PRECIPITATION FOR FEBRUARY, 1894.

The total precipitation for February, 1894, exceeded 10.00 at most of the stations on the immediate coast of Washington and northern Oregon; it was from 6.00 to 8.00 on the coast of southern Oregon and northern California; from 12.00 to 16.00 in a small portion of southeastern Alabama and northwestern Florida; from 8.00 to 12.00 in a belt from central Arkansas to central Tennessee. No rain fell in the neighborhood of Yuma, Ariz., and it averaged less than one-half an inch over the region between Texas, Montana, and Lake Superior.

DEPARTURES FROM NORMAL PRECIPITATION.

The precipitation for February was in excess of the normal in the middle and south Atlantic States and Ohio Valley and north Pacific coast region. It was generally deficient in other portions of the United States. The principal deficits were: Eastport, Me., 2.8; Jupiter, Fla., 2.8; Titusville, Fla., 3.4; Los Angeles, Cal., 2.9. The principal excesses were: Tatoosh Island, Wash., 3.1; Neah Bay, Wash., 4.4; New Orleans, La., 6.8; Mobile, Ala., 4.8; Pensacola, Fla., 5.3

Considered by districts the precipitation for February, 1894, when compared with the normal for the month, furnishes the following percentages (precipitation is in excess when the percentage of the normal exceeds 100): East Gulf States, 168; middle slope, 169; north Pacific coast, 124; middle Atlantic States, 126; south Atlantic States, 122; Ohio Valley and Tennessee, 121; lower Lake region, 107; middle plateau, 100; Missouri Valley, 93; northern plateau, 90; New England, 90; west Gulf States, 89; upper Mississippi Valley, 86; middle Pacific coast, 86; southern plateau, 85; southern slope (Abilene, Tex.), 81; upper Lake region, 70; northern slope, 61; North Dakota, 50; south Pacific coast, 45; Key West, Fla., 1.

The following table shows for certain stations, as reported by voluntary observers, (1) the average precipitation for February for a series of years; (2) the length of record during which the observations have been taken and from which the average has been computed; (3) the total precipitation for February, 1894; (4) the departure of the current month from the average; (5) the extremes for February and the years of occurrence during the period of observation:

Departures from average precipitation.

State and station.	(1) Average for the month of Feb.	(2) Length of record.	(3) Total for Feb., 1894.	(4) Departure from average.	(5) Extremes for February.			
					Greatest.		Least.	
					Am't.	Year.	Am't.	Year.
<i>Arizona.</i>	<i>Inches.</i>	<i>Years</i>	<i>Inches.</i>	<i>Inches.</i>	<i>Inches.</i>			
Fort Apache .....	1.89	18	0.96	- 0.93	4.10	1891	0.89	1889
Fort Mohave .....	0.91	22	.....	.....	5.00	1874	0.00	.....
Whipple Barracks .....	1.84	22	0.30	- 1.54	6.55	1884	0.01	1876
<i>Arkansas.</i>								
Keesees Ferry .....	4.45	12	5.40	+ 0.95	10.93	1884	1.24	1892
<i>California.</i>								
Riverside .....	2.56	13	0.35	- 2.21	7.94	1884	0.00	1885
<i>Colorado.</i>								
Las Animas .....	0.26	12	1.10	+ 0.84	0.59	1888	0.00	1891
<i>Florida.</i>								
Merritts Island .....	2.80	16	0.21	- 2.59	6.01	1888	0.15	1882
<i>Georgia.</i>								
Forsyth .....	4.74	20	9.69	+ 4.95	9.69	1894	1.19	1879
<i>Idaho.</i>								
Boise Barracks .....	1.69	20	0.82	- 0.87	6.49	1872	T.	1889
Fort Sherman .....	2.30	11	4.00	+ 1.70	5.81	1890	0.42	1889
<i>Indiana.</i>								
Lafayette .....	3.30	14	2.61	- 0.69	7.43	1883	1.20	1889
<i>Iowa.</i>								
Cresco .....	1.02	22	0.47	- 0.55	1.88	1887	0.07	1877
<i>Kansas.</i>								
Independence .....	2.15	22	2.12	- 0.03	7.04	1881	0.25	1872
<i>Louisiana.</i>								
Grand Coteau .....	3.27	11	6.05	+ 2.78	8.42	1891	1.37	1886
<i>Maine.</i>								
Orono .....	4.01	23	1.73	- 2.28	8.39	1876	1.20	1877
<i>Maryland.</i>								
Cumberland .....	2.64	21	3.76	+ 1.12	4.92	1882	0.60	1877
<i>Michigan.</i>								
Kalamazoo .....	2.64	18	0.98	- 1.66	5.44	1881	0.12	1877
<i>Missouri.</i>								
Sedalia .....	2.64	15	2.31	- 0.33	6.42	1892	0.65	1879
<i>Montana.</i>								
Fort Custer .....	0.48	14	0.28	- 0.20	1.29	1885	0.02	1882
<i>Nebraska.</i>								
Fort Robinson .....	0.58	10	0.43	- 0.15	1.12	1885	0.19	1892
Genoa (near) .....	0.82	18	0.54	- 0.28	2.55	1891	0.10	1889
<i>Nevada.</i>								
Brdwns .....	0.57	23	.....	.....	2.05	1872	0.00	1882, '89
Carson City .....	1.41	17	2.83	+ 1.42	4.18	1891	0.08	1877
<i>New Hampshire.</i>								
Hanover .....	2.52	22	2.02	- 0.50	7.67	1887	1.20	1875
<i>New Mexico.</i>								
Deming .....	0.47	11	0.66	+ 0.19	1.78	1888	0.00	1883, '90
Fort Wingate .....	1.65	23	1.85	+ 0.20	11.20	1873	0.05	1881
<i>New York.</i>								
Cooperstown .....	2.35	23	2.00	- 0.35	5.21	1887	0.63	1877
Plattsburg Barracks .....	1.40	23	1.37	- 0.03	2.69	1880	0.20	1888
<i>North Carolina.</i>								
Lenoir .....	4.32	22	5.66	+ 1.34	9.00	1873	0.60	1877
<i>Oklahoma.</i>								
Fort Reno .....	1.09	9	0.50	- 0.59	2.84	1889	0.13	1891
Fort Sill .....	1.24	22	0.72	- 0.52	3.45	1881	T.	1876
Fort Supply .....	0.83	15	1.04	+ 0.21	3.06	1874	0.00	1887
<i>Oregon.</i>								
Bandon .....	9.02	16	10.87	+ 1.85	17.82	1881	2.11	1892
<i>Pennsylvania.</i>								
Dyberry .....	2.90	23	2.73	- 0.17	6.58	1893	0.60	1877
Gramplan .....	3.75	22	1.14	- 1.61	7.62	1887	1.56	1872
Wellsboro .....	5.48	14	2.25	- 3.23	10.93	1884	0.95	1887
<i>South Carolina.</i>								
Statesburg .....	3.07	12	5.86	+ 2.79	5.86	1894	1.18	1883
<i>South Dakota.</i>								
Fort Sully .....	0.43	23	T.	- 0.43	1.50	1871	T.	1894
<i>Texas.</i>								
Austin .....	2.50	22	.....	.....	7.22	1888	T.	1885, '93
Silver Falls .....	0.79	7	0.12	- 0.67	2.07	1887	T.	1891
<i>Utah.</i>								
Terrace .....	0.39	19	0.50	+ 0.11	1.30	1881	0.00	*
<i>Vermont.</i>								
Strafford .....	2.94	20	3.80	+ 0.86	5.90	1887	0.30	1877
<i>Virginia.</i>								
Dale Enterprise .....	3.36	14	3.57	+ 0.21	9.00	1884	0.83	1882
<i>Washington.</i>								
Fort Townsend .....	1.93	19	1.76	- 0.17	3.94	1879	0.37	1886
<i>West Virginia.</i>								
Paikersburg .....	3.75	9	3.60	- 0.15	7.42	1887	1.40	1886
<i>Wisconsin.</i>								
Madison .....	1.70	23	0.46	- 1.24	5.42	1881	0.30	1877
<i>Wyoming.</i>								
Fort Washakie .....	0.33	11	0.45	+ 0.12	1.04	1881	0.04	1882

\*Frequently.

ACCUMULATED PRECIPITATION.

From the beginning of the year to the end of February, 1894, the total precipitation was in excess of the normal, decidedly, in the north and middle Pacific and northern plateau regions and the east Gulf States. It was especially

deficient in the south Pacific and southern plateau regions and Key West, Fla. In detail the accumulated precipitation, as compared with the normal value, furnishes the following percentages: Northern plateau, 145; north Pacific coast, 122; east Gulf States, 116; middle Pacific coast, 106; Missouri Valley, 104; middle plateau, 103; middle slope, 100; middle Atlantic States, 96; lower Lake region, 95; southern slope (Abilene, Tex.), 95; Ohio Valley and Tennessee, 94; south Atlantic States, 93; upper Mississippi Valley, 86; New England, 85; northern slope, 84; upper Lake region, 80; west Gulf States, 77; North Dakota, 67; southern plateau, 58; south Pacific coast, 50; Key West, Fla., 32.

YEARS OF GREATEST PRECIPITATION FOR FEBRUARY.

The precipitation was the greatest on record for the month of February at Astoria, Oreg., being 11.87, or 4.7 above the normal; the largest previous record was 11.48, in 1890; at Pensacola, Fla., being 9.22, or 5.3 above the normal; the largest previous record was 8.98, in 1881.

YEARS OF LEAST PRECIPITATION FOR FEBRUARY.

The precipitation was the least on record for the month of February at Bismarck, N. Dak., being 0.04, or 0.6 below the normal; the lowest previous record was 0.16, in 1880; Eastport, Me., being 1.28, or 2.8 below the normal; the lowest previous record was 1.34, in 1877.

EXCESSIVE PRECIPITATION.

The following tables for February, 1894, show, by states, the number of stations reporting total precipitation to equal or exceed 10.00 inches during this month; 2.50 in 24 hours, and 1.00 in 1 hour:

Monthly precipitation to equal or exceed 10.00.

State.	Number of stations.	State.	Number of stations.
California	18	Arkansas	3
Louisiana	11	Georgia	2
Alabama	8	Tennessee	2
Oregon	6	Florida	1
Washington	6		

Daily precipitation to equal or exceed 2.50 in 24 hours.

State.	Number of stations.	Dates.	State.	Number of stations.	Dates.
California	32	8-9, 9, 15, 17-19, 18-19, 19, 19-20, 20.	Florida	3	11, 21, 24-25.
Arkansas	25	2-3, 3, 3-4, 7, 7-8, 8.	Indiana	3	12, 12-13.
Tennessee	25	2-3, 3, 3-4, 7-8, 8.	North Carolina	2	11-12, 14-15.
Louisiana	20	11, 20, 20-21, 21, 22-23, 23, 23-24.	Washington	2	4-5, 6-7.
Alabama	15	2-3, 9, 10-11, 11, 11-12, 19, 23.	Indian Territory	1	8.
Mississippi	6	2-3, 3, 11, 19-20.	Michigan	1	9.
Georgia	5	11, 11-12, 21-22.	Missouri	1	2-3.
			New Jersey	1	25-26.
			Oregon	1	7.
			Texas	1	7-8.

Hourly precipitation to equal or exceed 1.00.

State.	Number of stations.	Dates.
Alabama	1	17.

Excessive precipitation, February, 1894.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
<b>Alabama.</b>						
Auburn	16.54	3.00	11-12			
Brewton	10.08	9.00	11			
Citronelle	10.20	5.30	11-12			
Eufaula a.		3.30	2-3			
Florence a.						

Excessive precipitation—Continued.

State and station.	Monthly rainfall to inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
<b>Alabama—Continued.</b>						
Florence b.	10.44	3.57	2-3			
Fort Deposit	13.05	2.76	11-12			
Geneva	2.94	5.66	9			
Highland Home	2.93	2.94	11-12			
Mobile	4.10	2.93	11-12			
Newton	3.03	4.10	11			
Do	3.02	3.03	23			
Rock Mills	13.94	3.02	11			
Selma	3.26	3.61	10-11	2.15	2 00	17
Do	2.80	3.26	19			
Starlington	11.51	2.80	11			
Tallassee Falls	3.02	3.02	11-12			
Union Springs a.	3.45	3.45	11-12			
<b>Arkansas.</b>						
Bee Branch	2.80	2.80	3			
Do	6.00	2.80	7			
Brinkley	3.73	2.80	2-3			
Cassville	3.40	3.73	7-8			
Conway	3.00	3.40	2-3			
Do	2.62	3.00	7-8			
Corning	4.40	2.62	8			
Dardanelle	10.33	4.40	7-8			
Forrest	2.60	2.60	2-3			
Fort Smith	3.00	3.00	7-8			
Helena a.	2.92	2.92	3-4			
Hot Springs	3.10	3.10	3			
Do	2.77	3.10	7-8			
Hot Springs (near)	3.38	2.77	3			
Kirby	3.00	3.38	3			
Do	3.60	3.00	2-3			
Lanoke	3.00	3.60	7-8			
Mount Ida	10.38	3.00	2-3			
Do	4.54	3.04	3			
Mount Nebo	4.90	4.54	7-8			
New Gascony	2.64	4.90	7-8			
Newport a.	3.15	2.64	3-4			
Do	3.15	3.15	2-3			
Newport b.	3.01	3.15	7-8			
Do	3.01	3.01	2-3			
Osceola	2.55	3.01	7-8			
Ozark	4.50	2.55	7-8			
Russellville	3.85	4.50	7-8			
Searcy	11.46	3.85	7-8			
Do	4.94	3.40	2-3			
Stuttgart	2.75	4.94	7-8			
Warm Springs	4.00	2.75	2-3			
Wiggs	2.55	4.00	7-8			
<b>California.</b>						
Boulder Creek	13.87	2.73	19			
Cloverdale	2.73	3.35	19			
Covelo	2.71	2.71	8			
Edmonton	16.48	2.71	8			
Do	7.26	7.26	17-19			
Eldorado	11.90	11.90				
Emigrant Gap	15.50	15.50				
Felton	12.78	12.78				
Folsom City b.	2.91	2.91	19-20			
French Corral	2.80	2.80	19			
Georgetown	16.25	7.36	19-20			
Grass Valley a.	11.72	4.65	19			
Iowa Hill	12.25	2.99	19-20			
Jackson	10.84	3.89	19			
Kelseyville	2.72	2.72	19			
Kennedy Gold Mine	11.86	2.58	8-9			
Do	4.75	4.75	19-20			
Lagrange	2.95	2.95	19-20			
Laurel	11.33	11.33				
Lick Observatory	10.52	3.46	19-20			
Lodi	2.77	2.77	19			
Mariposa	2.58	2.58	9			
Do	2.98	2.98	19			
Middletown	6.11	6.11	17-19			
Milton (near)	4.37	4.37	19-20			
Mokelumne Hill	3.50	3.50	19			
Nevada City	10.85	3.70	19			
Newcastle a.	3.38	3.38	19			
Oleta	2.50	2.50	18-19			
Orangevale	2.59	2.59	19			
Placerville a.	14.40	14.40				
Placerville b.	13.02	4.53	18-19			
Pleasanton b.	2.53	2.53	19			
Repress	3.05	3.05	19-20			
Santa Cruz b.	3.50	3.50	20			
Shasta Springs	3.25	3.25	15			
Stockton a.	2.03	2.03	20			
Sutter Creek	2.50	2.50	20			
Towles	10.10	10.10				
Truckee	10.95	10.95				
Ukiah	3.75	3.75	19			
Upper Mattole	3.09	3.09	18-19			
Wire Bridge	3.33	3.33	20			
<b>Florida.</b>						
Moseley Hall	2.90	2.90	24-25			
Pensacola	4.18	4.18	11			
Tallahassee	3.90	3.90	21			
<b>Georgia.</b>						
Lagrange	2.55	2.55	11			
Lumpkin	4.45	4.45	11-12			
Marshallville	10.41	10.41	11			
Morgan	10.06	10.06				

Excessive precipitation—Continued.

State and station.	Monthly rainfall in inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
<i>Georgia—Continued.</i>						
Piscola	Inches.	2.60	21-22			
Talbotton		2.52	11-12			
<i>Indiana.</i>						
Euntingburg		2.75	12			
Indianapolis		2.69	12-13			
Marengo		2.50	12			
<i>Indian Territory.</i>						
Kemp		2.56	8			
<i>Louisiana.</i>						
Abbeville		5.24	20-21			
Alexandria		2.51	11			
Baton Rouge		3.00	20-21			
Cameron		3.16	21			
Covington	12.48					
Donaldsonville	10.15	3.41	21			
Emilie	12.93	3.67	20-21			
Do		5.30	22-23			
Franklin		2.89	21			
Hammond		2.60	22-23			
Houma	10.36	4.50	23			
Jeannerette	10.23	3.10	20			
Lafayette		2.65	20-21			
Lake Charles		2.70	20-21			
New Orleans	11.06	3.59	20-21			
Opelousas		3.08	23			
Paincourtville	10.28	3.75	20-21			
Do		3.44	22-23			
Shell Beach		3.00	20			
Sugar Experimental Station	13.43	3.25	20			
Do		2.50	23			
Thibodeaux	11.58	2.66	22			
Wallace	11.25	3.08	20-21			
Do		2.50	22-23			
West End	13.23	3.88	20-21			
Do		3.02	23-24			
<i>Michigan.</i>						
Brown City		3.35	9			
<i>Mississippi.</i>						
Batesville		2.58	3			
Biloxi		3.04	19-20			
Clarksdale		3.22	2-3			
Kosciusko		2.80	11			
University		2.50	3			
Vicksburg				1.62	1 00	11
Waynesboro		3.30	11			
<i>Missouri.</i>						
Gayoso		2.60	2-3			
<i>New Jersey.</i>						
Newton		2.92	25-26			
<i>North Carolina.</i>						
Falkland		2.62	14-15			
Highlands		2.74	11-12			
<i>Oregon.</i>						
Astoria	11.87					
Bandon	10.87					
Cascade Locks	10.71					
Glenora	18.44	3.10	7			
Langlois	11.92					
Toledo	13.05					
<i>Tennessee.</i>						
Ashwood		3.70				
Bolivar		3.75				
Columbia		3.59				
Covington	12.07	5.09	7			
Florence Station		3.14	2-3			
Franklin		2.77	2			
Greenville		3.33				
Hohenwald	10.10	3.75	2			
Jacksboro		2.65				
Jackson		2.70	7			
Johnson City		2.50	3-4			
Knoxville		3.26	2-3			
Loudon		2.90				
Lynnville		3.40	2			
Memphis		3.07	2			
Nashville		2.92	2			
Do		2.85	2			
Newport		3.60	2			
Nunnally		2.66				
Palmetto		3.33				
Riddleton		2.67				
Rockwood		4.30				
Savannah		4.13				
Trenton		3.00				
Do		3.00				
Waynesboro		3.00				
Wier		2.97	2-3			
<i>Texas.</i>						
Weatherford		2.60	7-8			
<i>Washington.</i>						
Aberdeen	12.28					
East Clallam	13.14					
Ferry		2.52	6-7			
Lapush	10.33	2.51	4-5			
Neah Bay	15.52					
Tatoosh Island	11.65					
Union City	10.66					

Excessive precipitation received too late for publication in January, 1894.

State and station.	Monthly rainfall in inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
<i>California.</i>						
Covelo	Inches.	15.53		Inches.	4.86	14
Do					3.54	20
<i>Oklahoma Territory.</i>						
Stillwater					3.51	19
<i>Oregon.</i>						
Aurora (near)	14.90	2.61	13			
Forest Grove	11.63					
Vernonia	13.98	2.67	13			

MAXIMUM RAINFALL IN ONE HOUR OR LESS.

The following table is a record of the heaviest rainfall during February, 1894, for periods of five and ten minutes and one hour, as reported by regular stations of the Weather Bureau furnished with self-registering rain gauges. This record refers strictly to rainfall. About 37 stations are furnished with the self-registering float rain gauge and 6 with the self-registering, weighing, rain and snow gauge. The float gauge does not record snowfall, and the frequent interruptions of both the self-registers, due to snow and ice, explain the numerous cases of incomplete record.

Maximum rainfall in one hour or less.

Station.	Maximum rainfall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
	Inch.		Inch.		Inch.	
Atlanta, Ga.	0.25	8	0.35	8	0.51	8
Boston, Mass.	0.02	15	0.04	15	0.16	15
Buffalo, N. Y.	0.02	9	0.04	9	0.14	9
Cincinnati, Ohio *	0.05	17	0.07	17	0.24	17
Detroit, Mich. *	0.02	17	0.03	17	0.12	9, 17
Galveston, Tex.	0.25	21	0.32	21	0.70	22
Indianapolis, Ind. *	0.12	8	0.18	8	0.30	8
Jacksonville, Fla.	0.15	19	0.25	19	0.40	19
Jupiter, Fla.	0.02	15	0.03	15	0.10	15
Kansas City, Mo. *	0.05	9	0.10	9	0.15	9
Key West, Fla. †						
Memphis, Tenn.	0.17	8	0.23	3	0.70	3
Nantucket, Mass.	0.07	18	0.11	15	0.18	18
Nashville, Tenn.	0.08	8, 19	0.15	19	0.35	19
New Orleans, La.	0.14	22	0.25	22	0.70	19, 21
Norfolk, Va. *	0.06	15	0.10	15	0.27	15
Philadelphia, Pa. *	0.04	19	0.07	19	0.16	9
Portland, Oreg. *	0.03	17	0.05	17	0.15	17
St. Louis, Mo. *	0.05	8	0.08	8	0.30	8
San Diego, Cal.	0.03	16	0.05	16	0.12	16
San Francisco, Cal.	0.06	15	0.08	15	0.20	19
Savannah, Ga. *	0.05	25	0.09	25	0.23	21
Vicksburg, Miss.	0.26	11	0.44	11	1.62	11
Wilmington, N. C.	0.05	4, 14	0.08	14	0.28	14

\* Record incomplete.

† Less than 0.05 in 1 hour.

FREQUENCY OF HEAVY PRECIPITATION SINCE 1870.

The following tables show the number of years for which monthly precipitation to equal or exceed 10.00 inches, daily precipitation to equal or exceed 2.50 inches, and hourly precipitation to equal or exceed 1.00 inch has been reported at regular stations of the Weather Bureau in the several States and Territories for February during the last 24 years:

Frequency of excessive monthly precipitation.

State.	No. years noted.	State.	No. years noted.
California	16	Arkansas	4
Oregon	13	Connecticut	3
Washington	12	Kentucky	3
Tennessee	11	Pennsylvania	3
North Carolina	9	Illinois	2
Alabama	9	Massachusetts	2
Texas	8	Ohio	2
Indiana	6	Rhode Island	2
Mississippi	6	South Carolina	2
Georgia	6	Kansas	1
New York	5	Michigan	1
Florida	5	New Hampshire	1
Louisiana	5	New Mexico	1

*Frequency of excessive monthly precipitation—Continued.*

State.	No. years noted.	State.	No. years noted.
Virginia	1	Maryland	0
Arizona	1	Minnesota	0
Utah	1	Missouri	0
Colorado	0	Montana	0
The Dakotas	0	Nebraska	0
Delaware	0	Nevada	0
District of Columbia	0	New Jersey	0
Idaho	0	Vermont	0
Indian Territory	0	West Virginia	0
Iowa	0	Wisconsin	0
Maine	0	Wyoming	0

*Frequency of excessive daily precipitation.*

Texas	15	Massachusetts	3
Alabama	14	Arizona	2
Georgia	14	Iowa	2
Tennessee	14	New Jersey	2
New York	11	Washington	2
Arkansas	11	The Dakotas	1
Louisiana	11	Delaware	1
North Carolina	11	Rhode Island	1
Florida	10	South Carolina	1
Illinois	9	Indian Territory	0
Mississippi	8	Colorado	0
Oregon	8	District of Columbia	0
California	7	Idaho	0
Kentucky	7	Minnesota	0
Connecticut	5	Montana	0
Ohio	5	Nebraska	0
Indiana	5	Nevada	0
Michigan	5	New Hampshire	0
Pennsylvania	4	New Mexico	0
Missouri	4	Utah	0
Kansas	3	Vermont	0
Maryland	3	West Virginia	0
Virginia	3	Wisconsin	0
Maine	3	Wyoming	0

*Frequency of excessive hourly precipitation.*

Tennessee	8	Kentucky	0
Mississippi	5	Maine	0
Texas	4	Maryland	0
North Carolina	4	Massachusetts	0
California	3	Minnesota	0
Alabama	3	Missouri	0
Arkansas	2	Montana	0
Florida	2	Nebraska	0
Georgia	1	Nevada	0
Louisiana	1	New Hampshire	0
Michigan	1	New Jersey	0
Pennsylvania	1	New Mexico	0
Arizona	0	New York	0
Colorado	0	Ohio	0
Connecticut	0	Oregon	0
The Dakotas	0	Rhode Island	0
Delaware	0	South Carolina	0
District of Columbia	0	Utah	0
Idaho	0	Vermont	0
Illinois	0	Virginia	0
Indiana	0	Washington	0
Indian Territory	0	West Virginia	0
Iowa	0	Wisconsin	0
Kansas	0	Wyoming	0

EXCEPTIONAL PRECIPITATION.

The following tables give exceptionally heavy monthly, daily, and hourly precipitation reported for February by any station, regular or voluntary, and in any year:

*Exceptional monthly precipitation.*

Station and state.	Am't.	Year.	Station and state.	Am't.	Year.
	<i>Inches.</i>			<i>Inches.</i>	
Boulder Creek, Cal	34.03	1891	Felton, Cal.	21.69	1891
Cuyamaca, Cal.	32.20	1891	Summit, Cal.	20.70	1887
Laurel, Cal	28.95	1891	Crescent City, Cal	20.55	1891
Cisco, Cal.	22.85	1887	Highlands, N. C.	20.20	1891

*Exceptional daily precipitation.*

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
	<i>Inches.</i>			<i>Inches.</i>	
Stonewall Mine, Cal	23.90	21-24, 1891	Maurepas, La	7.35	15, 1891
Cuyamaca, Cal.	22.40	22-23, 1891	Julian, Cal	7.48	23-24, 1891
Santa Rosa Ranch, Cal.	15.33	21-23, 1891	Georgetown, Cal	7.36	19-20, 1891
Oneida, N. Y.	10.10	13, 1874	Edmonton, Cal	7.26	17-19, 1891
Brewton, Ala	9.00	11, 1894	Oakland, Cal. a.	6.65	15, 1891
Emilie, La.	8.42	12-14, 1891	Farleys Camp, Ariz.	6.45	17-18, 1891

*Exceptional daily precipitation—Continued.*

Station and state.	Amount.	Date.	Station and state.	Amount.	Date.
	<i>Inches.</i>			<i>Inches.</i>	
Campo, Cal	6.40	21-22, 1891	Monroe, La	5.73	12-13, 1891
Luling, La.	6.24	13-14, 1891	Geneva, Ala.	5.66	9, 1894
Palermo, Cal	6.12	14-15, 1891	Eufaula, Ala. a.	5.30	11-12, 1894
Middletown, Cal	6.11	17-19, 1894	Emilie, La.	5.30	22-23, 1894
Vacaville, Cal. a.	6.10	14-15, 1891	Athens, Ga.	5.26	7, 1891
Highlands, N. C.	6.01	8-9, 1891	Abbeville, La.	5.24	20-21, 1894
Bee Branch, Ark.	6.00	7, 1894	Lynnville, Tenn.	5.15	16-17, 1893
Covington, Tenn. a.	5.99	7-8, 1894	Los Gatos, Cal.	5.12	14-15, 1891
Mt. Vernon B'ks, Ala.	5.82	13, 1891	Kosciusko, Miss	5.00	12-13, 1891
Corpus Christi, Tex	5.80	3, 1891			

*Exceptional precipitation for one hour or less.*

Station and state.	Amount.	Time.	Date.
	<i>Inches.</i>	<i>h. m.</i>	
Jupiter, Fla.	0.45	0 05	25, 1893
Memphis, Tenn.	0.30	0 05	6, 1892
Vicksburg, Miss.	0.26	0 05	11, 1894
Atlanta, Ga.	0.25	0 05	8, 1894
Galveston, Tex.	0.25	0 05	21, 1894
Memphis, Tenn.	0.25	0 05	8, 1891
Do	0.55	10 10	6, 1892
Little Rock, Ark.	0.70	0 12	6, 1892
Louisville, Miss.	1.93	0 30	26, 1890
Galveston, Tex.	3-3'	1 00	22, 1888

MONTHLY SNOWFALL.

The depth of snow that fell during the month of February, 1894, as reported by both regular and voluntary observers, is shown by the lines and figures on Chart V, which also gives, by the full line, the limit at which minimum temperatures of 32° F. were at any time reported at the regular Weather Bureau stations; by the dotted line is given a similar limit for 40°. These air temperatures within Weather Bureau shelters are, of course, higher than would be given by thermometers exposed in the open air. The line of 40° within a shelter approximates to the limit of frosts on the open surface of the ground. The actual depths of snowfall when above 10 inches and the depth of snow at the end of the month are given together in a following section. As compared with the normal it will be seen that snowfall has been remarkably heavy throughout the Appalachian range and nearly the whole area of the Middle and Eastern States. In New York and Pennsylvania it was from two to three times its normal value. It was also above the normal in the mountains of Colorado.

SPECIAL SNOWFALL, FEBRUARY 24-26, 1894.

The following table shows the time of beginning and ending and the total depth of snowfall reported during the storm of February 24-26, 1894, at stations in the Southern States:

Stations.	Beginning and ending.	Depth.
		<i>Inches.</i>
<i>Alabama.</i>		
Florence	24-25th	8.0
Lynn	24-25th	5.0
Maple Grove	10 a. m., 24th, to 6 p. m., 25th	4.0
Newburg	8 a. m., 24th, to 6 p. m., 25th	9.0
Oxanna	24-25th	5.0
Rock Mills	24-25th	4.5
Scrattsboro	24-25th	6.0
Talladega	7 a. m. to 4:35 p. m., 25th	1.0
<i>Arkansas.</i>		
Arkansas City	8 a. m., 24th, to 10 a. m., 25th	4.0
Ashdown	8 a. m., 24th, to p. m., 25th	3.0
Blanchard Springs	8 a. m., 24th, to 10 a. m., 25th	4.0
Brinkley	11 a. m. to 5 p. m., 24th.	4.0
Cassville	7 p. m., 24th, to 4 a. m., 25th	5.0
Conway	2 p. m., to 11 p. m., 24th	1.5
Forrest City	11 a. m., 24th, to 1 p. m., 25th	4.0
Fort Smith	4 p. m., 24th, to 7:15 a. m., 25th	4.2
Gaines Landing	25th	4.0
Helena	10:30 a. m., 24th, to p. m., 25th	6.0
Little Rock	12:25 p. m., 24th, to 12:18 p. m., 25th	3.0
Newport	5 p. m., 24th, to 11 a. m., 25th	1.5
Osceola	25th	7.0
Ozark	25th	2.8

## Special snowfall—Continued.

Stations.	Beginning and ending.	Depth.
		Inches.
<i>Arkansas—Continued.</i>		
Rison	24-25th	8.0
Searcy	2 p. m., 24th, to 11 a. m., 25th	2.8
Stuttgart	25th	3.0
Washington	24th	4.0
Winslow	6 p. m., 24th, to 6 a. m., 25th	5.0
<i>Georgia</i>		
Atlanta	At intervals, 24-25th	6.0
Clayton	25th	6.0
Diamond	25-26th	4.0
Elberton	24-25th	5.0
Hephzibah	25th	4.0
Lafayette	24-25th	9.0
Lagrange	24-25th	5.8
Lawrenceville	25th	4.0
Leverette	24-25th	3.2
Louisville	25th	3.0
Marietta	25th	4.0
Monticello	25th	2.0
Point Peter	24-25th	3.0
Rome	25-26th	2.5
<i>Louisiana</i>		
Bastrop	24-25th	3.0
Conshatta	24th	1.5
Delhi	25th	1.0
Farmerville	24th	2.0
Girard	25th	1.0
Lake Providence	24-25th	2.0
Liberty Hill	24th	3.0
Monroe	25th	1.0
Natchitoches	25th	1.0
Oxford	24-25th	1.2
Plain Dealing	24th	3.2
Shreveport	At intervals, 24-25th	2.7
<i>Mississippi</i>		
Aberdeen	7 p. m., 24th, to 4.20 p. m., 26th	7.0
Agricultural College	24th	1.0
Batesville	24th	5.0
French Camps	24-25th	2.0
Greenville	24th	3.0
Itta Bena	24-25th	3.0
Okolona	25th	2.0
Palo Alto	3 a. m., 24th, to 4 p. m., 25th	3.0
Pontotoc	Noon, 24th, to 6 p. m., 25th	6.0
Yazoo City	25th	1.0
<i>North Carolina</i>		
Asheville	25-26th	6.5
Bailey	25th	10.0
Bakersville	10 p. m., 24th, to 2 a. m., 26th	14.0
Blowing Rock	25th	12.0
Bryson City	7 p. m., 24th, to 7 p. m., 25th	5.0
Columbus	8 p. m., 24th, to 10 p. m., 25th	6.0
Flat Rock	25-26th	9.0
Henderson	2.30 a. m., 25th, to 7 a. m., 26th	7.5
Highlands	5 p. m., 24th, to p. m., 25th	8.0
Horse Cove	6 p. m., 24th, to 10 p. m., 25th	8.0
Lenoir	11 p. m., 24th, to night, 25th	9.0
Littleton	25th	6.0
Lynn	24-25th	7.2
Marion	25th	14.0
May	24-25th	5.0
Mocksville	Night, 25th, to night, 26th	10.0
Mount Airy	24-25th	6.0
Mount Pleasant	9 p. m., 24th, to p. m., 25th	6.0
Pittsboro	25th	8.0
Rockingham	25th	6.0
Roxboro	25th	6.0
Rutherford College	25-26th	1.0
Salisbury	25th	8.0
Saxon	25th	8.0
Shelby	25-26th	16.0
Soapstone Mount	25th	15.0
Southern Pines	25th	8.0
<i>South Carolina</i>		
Aiken	25th	3.0
Anderson	6 p. m., 24th, to 10 p. m., 25th	4.5
Camden	25-26th	1.0
Central	25th	4.0
Cheraw	25th	6.5
Clemson College	6 p. m., 24th, to 10 p. m., 25th	4.0
Conway	25th	2.2
Coronaca	24th	7.0
Cross Hill	24-25th	4.0
Effingham	2.15 p. m., 24th, to 10 p. m., 25th	8.5
Flint Hill	Noon, 24th, to noon, 25th	5.0
Gaffney	25th	7.5
Greenville	25th	7.0
Kingston	10 a. m., 24th, to 4 p. m., 25th	3.0
Little Mountain	11 a. m., 24th, to p. m., 25th	5.8
Longshore	Noon, 24th, to p. m., 25th	5.0
McCormick	25th	3.0
Mount Carmel	9.30 a. m., 24th, to 10 p. m., 25th	3.0
Santuck	12.15 p. m., 24th, to 8 p. m., 25th	7.8
Simpsonville	7 p. m., 24th, to night, 25th	3.0
Society Hill	p. m., 24th, to p. m., 25th	7.6
Statesburg	24th	6.0
Trenton	10.40 a. m., 24th, to 2.20 p. m., 25th	4.8
Yorkville	25th	8.0
<i>Texas</i>		
Brownwood	24th	1.2
Dallas	24-25th	3.0
Gainesville	24th	1.0
Grape Vine	6 a. m., 24th, to midnight	2.5
Hartley	24th	2.0
Temple	23d	1.0
Waco	24th	2.5

By plotting upon a chart the times at which snowfall began it will be seen that on the morning of the 24th snow began on the southern border of Oklahoma, and spread very slowly to the southwest but much more rapidly eastward. This eastward progress was of course due to the general cooling of the moist air before sunrise, so that at 8 a. m. it had already begun snowing at points in southeastern Oklahoma, southern Arkansas, northern Mississippi and Alabama, and northern and eastern Georgia. During the daytime of the 24th the cold northerly wind of northern Arkansas barely overcame the warmth of the solar heat, and the line of snowfall moved very slowly northward. In the south Atlantic States the progress northward was a little more rapid, and in the high lands of Virginia, Kentucky, Tennessee, and North Carolina still more rapid, while on the immediate seacoast line it was less so.

The southward movement of the area of snowfall in Texas must be attributed to the flow of cold, dry air southward in the rear of the barometric depression; the northward movement of the area of snowfall along the Atlantic coast and Appalachian range is attributable to the cooling of the clouds by radiation, especially at nighttime, thus converting into snow that which would otherwise have fallen as rain.

## DEPTH OF SNOW ON GROUND.

The depth of unmelted snow lying on the ground at 8 p. m. Monday of each week during the winter season is shown by a series of weekly maps published by the Weather Bureau, based upon telegraphic reports received from a comparatively few selected stations. These maps may be summarized as follows:

5th.—Maximum depths were 30 inches near Marquette, Mich., and over 20 inches in northern New Hampshire, Vermont, and Maine; the southern limit passed from Delaware westward along the southern border of Pennsylvania, Ohio, Indiana, Illinois, Iowa, and South Dakota, thence southward through Colorado into New Mexico; none was reported on the ground in the western portions of the Pacific coast States.

12th.—Maximum depths, 35 or 36 inches near Marquette, Mich.; 25 inches in northern New Hampshire and Maine; 15 inches in western Missouri; 9 inches in the eastern portion of South Dakota. The southern limit passed from Delaware southwest to northern Texas, thence northwest into Utah and Oregon, having been pushed farther south over the whole of Missouri, Nebraska, Kansas, and Oklahoma by the heavy snowfall of the past week.

19th.—Maximum depths, 35 or 36 inches near Marquette, Mich.; 25 inches in northern New Hampshire, Vermont, and Maine; 9 inches in Idaho. The southern limit extended from New Jersey to southern Kansas, thence northwestward into California and Oregon, having been appreciably broken up in Nevada, Utah, Colorado, Oklahoma, Texas, Missouri, and the Ohio Valley.

26th.—Maximum depths, 35 inches near Marquette, Mich.; 25 inches in northern New York, Vermont, New Hampshire, and Maine; 12 inches in Connecticut; 6 inches in Idaho. No snow was reported in central Indiana, southern Illinois, and southern Missouri, nor Nebraska, western Kansas, Oklahoma, and eastern Colorado. The southern limit was carried far southward by the heavy snows of February 25 and 26, and now extended from Norfolk southwest to central Georgia, thence northwest to central Oklahoma, northeast to southeastern Minnesota, west to central Wyoming, and south into New Mexico.

The accompanying chart, No. VI, gives the depth, in inches, of snow lying on the ground on February 28 at many stations, selected from among those that report the presence of more or less snow at the close of the day. The warm weather of the 27th and 28th caused a rapid melting, so that the charts of the 26th and 28th show remarkable differences.

The accompanying table shows both the total snowfall and the depth of snow on the ground on the 15th and 28th of the month:

Snowfall of 10 inches or more, February, 1894, with amounts on ground on the 15th and at the close of the month.

State and station.	Total.	15th.	28th.	State and station.	Total.	15th.	28th.
<i>Alabama.</i>				<i>Idaho—Cont'd.</i>			
Madison	11.0			Idaho Falls	11.8	3.5	6.0
Scottsboro	11.5	0.0	T.	Kootenai	15.0		
<i>Arizona.</i>				Martin	32.0		
Flagstaff	24.0			Murray	39.0		
Natural Bridge	12.0	2.0		Paris		12.0	14.0
Payson	13.0	0.0	0.0	Salubria	19.0	15.5	19.0
Saint Helena Ranch	14.0	10.0	0.0	Soldier	32.5	30.0	35.0
Walnut Ranch	11.0			<i>Illinois.</i>			
Wilgus	10.0			Aurora	10.3		
<i>California.</i>				Beardstown	14.0		
Boca	75.5			Chicago	12.9	10.0	0.0
Cisco	186.5			Decatur	12.4	11.0	
Davisville b	27.1			Dixon	12.0		
Dunsmuir	32.0			Fort Sheridan	15.0		
Edmanton	118.0	66.0	70.0	Havana	11.5	6.0	0.0
Emigrant Gap	155.0			Lagrange	12.0	10.0	0.0
Georgetown	15.0	0.0	0.0	Mount Pulaski	10.2	7.0	0.0
Girard	13.0			Rockford	13.0		
Gormans Station	13.2			Springfield	12.1	9.6	T.
Green Valley a	10.0			Walnut	11.0	7.2	T.
Iowa Hill	14.5	3.0	0.0	<i>Indiana.</i>			
Lick Observatory	20.0			Butlerville	11.0	3.5	
Mariposa	11.0			Connersville	10.2	5.0	0.0
Shasta Springs	22.2	8.0	0.0	Degonia Springs	11.5	4.0	0.0
Summit	152.5			Delphi	12.9	13.0	T.
Susanville	21.0			Farmland	16.0		
Tehachapi a	10.5			Hammond	15.0	7.0	0.0
Truckee	109.5			Hawpatch	14.0		
Weaverville	20.0	7.0	0.0	Huntington	12.0	6.0	T.
West Point	21.0	5.0	0.0	Jeffersonville	12.2	2.2	0.0
<i>Colorado.</i>				Kokomo	10.0	8.0	0.0
Akron	11.0	3.0	0.0	Laconia	14.0	2.0	
Arboles	22.0	6.0	2.0	Madison	10.0	3.0	
Avoca	11.0	0.0	0.0	Marengo	11.0	2.0	
Breckenridge		50.0	60.0	Marion	12.0	12.0	
Canyon	21.0	0.0	3.0	Markle	14.2	12.0	1.0
Castle Rock	10.5			Maury	10.2		
Cheyenne Wells	13.0			Mount Vernon	10.0	4.0	0.0
Climax	47.0	72.0	70.0	Muncie	10.3	9.0	0.0
Collbran	18.2		9.0	New Albany	11.5	1.8	
Denver	11.9	0.2	0.0	Rockville	10.5		
Divide Ex. Station	13.2	3.0	T.	Seymour	10.0	5.0	
Downing	11.7	0.0	3.0	South Bend	12.8	10.0	
East Dale	12.0	2.0	5.0	Valparaiso	16.0		
Glenwood Springs	11.2	4.0	0.0	<i>Indian Territory.</i>			
Gold Hill	11.0	5.0	4.0	South McAlester	11.5		
La Jara	16.5	2.0	5.0	<i>Iowa.</i>			
Lay	12.0	8.0	12.0	Atlantic	11.5	4.5	0.0
McCoy	12.0	17.0	22.0	Carroll	10.0	4.0	0.0
Manhattan	10.0			Cedar Rapids	12.1	6.0	T.
Meeker	14.5	6.0	4.0	Clarinda	12.2	10.0	
Minneapolis	13.0			College Springs	11.5	10.0	1.0
Monte Vista	14.5			Corning	14.0	10.0	0.0
Moraine	12.5		3.0	Des Moines	13.0	0.2	T.
Pagoda (near)	30.0	15.0	24.0	Dubuque	11.5	9.0	T.
Pavonia	13.5	2.0	4.0	Fairfield	15.5	0.0	0.0
Pikes Peak	21.1	6.3	1.0	Fort Madison	10.5	4.0	T.
Pueblo	20.1	0.0	0.0	Glenwood	11.0	10.0	0.0
Rico	28.9			Hawkeye	11.3	3.0	0.0
River Bend	12.0			Hopeville	12.0	10.0	
San Luis	13.1	2.0	1.0	Iowa City	15.8	0.5	T.
Scissors	23.0	6.0	4.0	Keosauqua	12.0	12.0	0.0
Seibert	10.0	0.0	0.0	Knoxville	13.0	12.0	
Smoky Hill Mine	10.0			Mechanicsville	19.5	10.0	5.0
Springfield	18.5			Ottumwa	10.0	9.0	0.0
Stamford	35.0		10.0	Ovid	15.5	15.0	
Steamboat Spring	24.0	36.0	36.0	Richland	16.0	7.0	0.0
Surface Creek	18.0		3.0	Seymour	14.2	6.0	0.0
T. S. Ranch	10.8			Tipton	13.0	10.0	T.
Vilas	20.0	8.0	0.0	Villisca	14.2	8.0	0.0
Wallet	11.0			Washington	14.0		
Ward District	17.0			Winterset	13.0	8.0	T.
<i>Connecticut.</i>				<i>Kansas.</i>			
Bridgeport	21.0	6.0	6.5	Abilene	12.5	2.0	
Canton	22.5	22.0	18.0	Achilles	11.0	5.0	0.0
Colchester	22.5	12.0	6.0	Allison	10.9	5.0	T.
Falls Village	17.0	16.0	7.0	Altoona	10.5	9.0	0.0
Greenfield Hill	22.0	10.0	10.0	Burlington	16.8	14.0	0.0
Hartford b	26.0	14.0	13.0	Columbus	11.5		
Lebanon	29.5	10.0		Concordia	11.7	1.2	0.0
Middletown	30.0	14.0	10.0	Dodge City	10.7	5.5	0.0
New Hartford a	20.0	12.0	15.0	Downs	22.0	4.0	0.0
New Hartford b	18.0	4.0	2.0	Elk City	12.8	9.0	0.0
New Haven	27.9	9.0	10.1	Emporia	17.0		
New London	21.3	7.6	4.0	Eureka Ranch	19.4	12.0	T.
North Grosvenor Dale	19.0	15.0	15.0	Gove	12.8	3.0	0.0
Norwalk	16.5	6.0	5.0	Grenola	12.0	10.0	0.0
Southington	16.2			Hutchinson	11.0	0.0	0.0
South Manchester	26.0	13.0	14.0	Independence	11.8	6.0	0.0
Storrs	13.0			Johnson	10.8	5.0	0.0
Voluntown		18.0	12.0	Lakin	12.0		
Wallingford		12.0	14.0	Lawrence	16.5		
Waterbury	33.0	15.0	12.0	Lebo	14.8	8.0	
West Simsbury	27.0	18.0	18.0	Leoti	21.0	10.0	0.0
<i>Delaware.</i>				Manhattan b	10.0	10.0	0.0
Dover	13.5	2.0	2.0	Manhattan c	14.0		
<i>District of Columbia.</i>				Marion	15.5	10.0	0.0
Washington	18.1	T.	1.5	Marmaton	11.5		
<i>Idaho.</i>				Morland	12.0	8.0	0.0
American Falls	14.0			Morton	10.0	6.0	0.0
Atlanta	36.0			Mount Hope	13.5		
Chesterfield	7.0	16.0	20.0	Norton	12.0		
Egin	13.5	13.0	12.0	Oberlin	10.5		
Garden Valley	30.0			Olathe	18.0	18.0	
Grangeville	13.2	10.0	3.0	Oswego	11.0	8.0	
Hailey	39.5			Phillipsburg	14.0		
Idaho City	18.5			Pleasant Dale	12.0	4.0	0.0

Snowfall of 10 inches or more—Continued.

State and station.	Total.	15th.	28th.	State and station.	Total.	15th.	28th.
<i>Kansas—Cont'd.</i>				<i>Michigan—Cont'd.</i>			
Quinter	12.0			Ball Mountain	14.2		11.0
Rome	10.7	10.0	0.0	Benton Harbor	18.2	13.0	0.0
Sedan	12.0	10.2	0.0	Benzonia	23.0	9.0	0.0
Tribune	15.0	7.0		Berlin	13.7	10.0	T.
Wallace a	14.0			Berrien Springs a	20.0	8.0	0.0
Wamego	10.0	10.0	0.0	Berrien Springs b	13.0		0.5
Wichita	10.9	5.5	0.0	Birmingham	12.0		
Yates Center	19.0	16.0		Boon	11.5	11.0	9.0
<i>Kentucky.</i>				Brown	19.0	13.0	
Bowling Green a	10.0	0.0	0.3	Calumet	14.5	54.0	54.0
Bowling Green b	12.7			Cheboyan	11.0	15.0	14.0
Catlettsburg	12.0	3.0	2.0	Detroit	14.6	14.1	T.
Earlington	11.5	3.0		Fairview	12.2		
Edmonton	13.0	2.0	1.0	Fitchburg	21.0	12.0	1.0
Elizabethtown	10.5	2.0	0.0	Grand Rapids	6.8	20.0	0.0
Eubank	10.5	3.0	0.0	Grape	13.5	12.0	0.0
Greendale	10.0	2.0		Grayling	12.0		
Harrodsburg	11.9	3.0	T.	Hanover	12.5	12.0	T.
Hendricks	10.5	2.0		Harbor Springs	13.0	20.0	18.0
Lexington	14.7	2.8	0.0	Harrisville	12.7		
Louisa	11.5	2.0	3.0	Hastings	12.9		
Louisville	10.2	1.7	T.	Jeddo	17.0	4.0	0.0
Mount Sterling	10.0	0.0	0.0	Lansing	10.0	7.0	T.
Pellville	15.5	3.0	2.0	Lathrop	6.2	34.0	30.0
Shelbyville	12.5	4.5	0.0	Lodi	11.5	6.0	4.0
South Fork	15.0	2.5	10.5	Madison	10.5	8.0	2.0
<i>Maine.</i>				Marquette	20.3	36.7	30.7
Bar Harbor	25.0	24.0	7.0	Parkville	12.0	1.0	0.0
Belfast	20.0	28.0	24.0	Port Huron	15.4	13.3	0.8
Calais	15.0	38.0	32.0	Rawsonville	12.0	4.0	0.0
Cornish	23.5		26.0	Sault Ste. Marie	5.2	21.0	22.0
East Machias	11.0	26.0	12.0	Stanton	2.0	20.0	
Eastport	10.1	8.6	3.6	Vandala	12.1	30.0	1.0
Fairfield	12.0	30.0	28.0	Williamston	15.0	10.0	0.0
Farmington	22.2		36.0	Ypsilanti	10.5	8.0	
Gardiner	18.0	28.0	18.0	<i>Minnesota.</i>			
Houlton	15.0	42.0	36.0	Ada	0.4	28.0	4.0
Indian Stream	19.0	34.0	36.0	Alexandria b	0.2	10.0	8.0
Kents Hill	12.0			Bonniwells Mills	T.	7.0	
Lewiston	24.1			Caledonia	10.6		2.0
Madison	22.0	49.0	50.0	Cambridge	T.	10.0	
North Bridgton	25.5	36.0	47.0	Clearwater		11.2	10.1
Orono	15.0	18.0	15.0	Collegeville		15.0	12.0
Portland	25.2	44.8	25.2	Excel	5.0	13.0	10.0
<i>Massachusetts.</i>				Farmington	0.5	14.0	10.0
Adams	20.0	22.0	7.0	Lake Winnibigoshish	1.4	15.5	13.5
Amherst	16.5			Leech Lake	2.0	14.0	14.0
Amherst Ex. Station a	18.2		6.0	Long Prairie	0.2		12.0
Amherst Ex. Station b	19.0		5.0	Maple Plain	1.0	16.0	9.0
Andover	26.0			Marfield	1.8	19.0	17.0
Bedford	19.0	24.0	15.0	Pokegama Falls	2.0	12.0	11.0
Beverly Farms	28.0	22.0	10.0	Red Lake	3.6	16.0	12.5
Blue Hill (summit)	25.0	19.0	8.0	Rush City	0.5	22.0	16.0
Boston	21.6	10.0	T.	Sandy Lake Dam	2.4	10.0	5.0
Brockton	26.0	6.0	3.0	Sauk Center	T.	10.	

Snowfall of 10 inches or more—Continued.

Table with columns: State and station, Total, 15th, 28th. Rows include Missouri, New Jersey, New Mexico, Nevada, New Hampshire, New Jersey, North Carolina, North Dakota, Ohio, Pennsylvania, and Virginia.

Snowfall of 10 inches or more—Continued.

Table with columns: State and station, Total, 15th, 28th. Rows include Ohio, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, and Virginia.

Snowfall of 10 inches or more—Continued.

State and station.	Total.	15th.	28th.	State and station.	Total.	15th.	28th.
<i>Utah.</i>				<i>Washington—Cont'd.</i>			
Blue Creek.....	12.0			Port Angeles.....	12.8	0.0	0.0
Castle Gate.....	11.8	1.5	0.0	Port Crescent.....	16.5		
Coalville.....	11.6			Seattle.....	10.0	0.0	0.0
Corinne.....	19.0			Silver Creek.....	18.6	0.0	0.0
Deseret.....	13.5			Snohomish.....	10.0	0.0	0.0
Glendale.....	16.0			Sunnyside.....	14.5	4.0	0.0
Grouse Creek.....	12.8	6.7	9.0	Union City.....	14.5		
Heber.....	16.0	22.0	20.0	Waterville.....	11.0		
Levan.....	15.5	17.0	16.0	Wenatchee Lake.....	44.0		
Logan.....	14.5			<i>West Virginia.</i>			
Ogden b.....	10.2			Beverly.....	37.5	6.0	10.0
Promontory.....	11.5			Bloomery.....	27.4	4.0	13.0
Provo City.....	15.0	8.0	2.0	Bluefield.....	13.5	2.5	2.0
Randolph.....	12.6	6.0	12.0	Buchannon a.....	24.2		
Salt Lake City.....	14.3	1.0	0.6	Burlington.....	24.0	4.0	15.0
Silver Lake.....	47.0	78.0	8.6	Central Station.....	19.0	4.6	6.0
Singletree.....	16.0			Charleston.....	15.0		4.0
Snowville.....	10.0			Charlestown.....	16.5	4.0	5.0
Soldier Summit.....	22.0	36.0	48.0	Cloverdale.....	14.0	1.0	6.0
Thistle.....	22.5			Davis.....	32.9	1.0	4.0
<i>Vermont.</i>				Elkhorn.....	16.5	3.0	4.0
Brattleboro.....	17.3			Fairmont.....	15.0	1.0	3.0
Burlington.....	13.0	10.0	4.0	Glenville.....	19.5	1.0	4.0
Cornwall.....	34.0	15.0	12.0	Grafton.....	21.3	3.0	5.0
Enosburg Falls.....	16.0			Harpers Ferry.....	16.0	4.0	4.0
Hartland.....	26.2	26.0	19.0	Hinton.....	18.0	1.0	8.0
Irasburg.....	34.0	48.0	38.0	Marlinton.....	18.0	2.0	6.0
Jacksonville.....	29.3	19.0	12.0	Martinsburg.....	17.5	3.0	6.0
Northfield.....	22.5	35.6	27.6	Morgantown a.....	14.0	2.0	3.0
Norwich.....	31.0	28.0	25.0	Parkersburg (W. B.).....	25.7	5.0	0.2
Stratford.....	41.5	42.0	30.0	Parkersburg (V. O.).....	18.0	4.0	3.0
Vernon.....	25.0			Philipi.....	12.0		8.0
Wells.....	20.0	18.0	12.0	Pleasant Hill.....	35.0	10.0	12.0
Woodstock.....	30.0	22.0	15.0	Point Pleasant.....	16.0	3.0	16.0
<i>Virginia.</i>				Raleigh.....	30.8	2.3	6.0
Abingdon.....	13.0			Rowlesburg.....	24.0	4.0	4.0
Alexandria.....	11.0	2.0	0.0	Sandyville.....	17.6	1.8	2.0
Avon.....	10.0			Spencer.....	15.5	0.5	1.0
Bedford City.....	12.5		2.0	Tannery.....	27.2	6.0	2.0
Big Stone Gap.....	10.5	T.	3.0	Weston a.....	21.5	1.0	4.0
Charlottesville.....	18.5			Weston b.....	18.0		
Christiansburg.....	10.0			Wheeling a.....	14.1	4.3	?
Clarksville.....	10.0	0.0	0.5	<i>Wisconsin.</i>			
Dale Enterprise.....	19.5	2.0	4.0	Amherst.....	6.0	10.0	6.0
Falls Church.....	12.8	T.		Ashland.....	18.8		
Hot Springs.....	14.0	1.0	6.0	Barron.....	4.5	12.0	9.0
Lexington.....	11.2		4.0	Bayfield.....	11.0	40.0	38.0
Lynchburg.....	12.5	0.0	0.4	Butternut.....	3.5	33.0	30.0
Riverton.....	24.0		6.0	Centralia.....	5.0	10.0	2.5
Salem.....	10.0		2.5	City Point.....	4.0	10.0	4.0
Spotsville.....	10.0	0.0	T.	Columbus.....	11.0	8.0	0.0
Standardsville.....	11.5	0.5	2.0	Crandon.....	5.0	36.0	28.0
Staunton.....	19.0	1.0	4.0	Estella.....	6.0	18.0	14.0
Stephens City.....	25.5	4.0	8.0	Florence.....	7.0	24.0	22.0
Woodstock.....	18.5			Grantsburg.....	2.0	19.0	14.0
Wytheville.....	10.5	0.0	2.0	Green Bay.....	14.0	11.2	1.2
<i>Washington.</i>				Hayward.....	2.5	30.0	25.0
Aberdeen.....	18.0	2.0	0.0	Hillsboro.....	14.0	10.0	T.
Chehalis.....	21.0			Koepnick.....	5.0	25.0	2.0
Crystal Springs.....	11.0	0.0	0.0	Medford b.....	13.0	19.0	16.0
Davenport.....		11.0	9.0	Menomonie.....	3.2	13.0	10.0
East Chillum.....	10.0			Milwaukee.....	10.6	0.0	T.
Elbe.....	34.2	13.0		Neillsville.....	4.0	15.0	12.0
Fort Canby.....	12.1	0.0	0.0	New Holstein.....	13.0	2.0	0.0
Fort Simcoe.....	11.0			Osceola.....	2.0	18.0	12.0
Fort Townsend.....	12.2	0.0	0.0	Shawano.....	5.0	10.0	19.0
Hunters.....	14.8	23.0	19.0	Stevens Point.....	6.0	10.0	6.0
Lapush.....	18.0	1.0	0.0	Weston.....	4.2	12.5	6.0
Madrone.....	19.5	1.5		<i>Wyoming.</i>			
Lapush.....	18.0	1.0	0.0	Fort Yellowstone.....	11.2		
Olympia.....	11.9	0.0	0.0	Lander (V. O.).....	11.0	4.0	
Pine Hill.....	17.8	0.0	0.0				
Pomeroy.....	10.5						

HAIL.

Description of the more severe hailstorms of the month is given under "Local storms." Hail was reported as follows: 3d, Alabama. 7th, Oregon and Texas. 8th, Arkansas, California, Louisiana, Mississippi, and Oregon. 9th, Connecticut, Michigan, Ohio, and Oregon. 11th, Arkansas, Mississippi, and Texas. 15th, California, Connecticut, and Oregon. 16th, Arizona. 17th, Arkansas, California, Indian Territory, Missouri, and Oregon. 18th, California and Oregon. 19th, Alabama, Arkansas, Georgia, Louisiana, New Jersey, North Carolina, and Tennessee. 20th, Pennsylvania. 24th, Louisiana. 26th, Connecticut. 28th, Texas.

FOG.

The principal dates on which fog occurred are as follows: *Alabama.*—1st, 18th, and 19th. *Arizona.*—Fort Bowie, 2d and 5th; a very unusual phenomenon in this Territory. *Illinois.*—7th, 8th, 9th, 25th, 27th, and 28th. *New England.*—Portland, Me., 13th, intense cold fog over

the harbor of Portland and along the coast to Seguin in the early morning; the vapor froze to everything touched by it. *Louisiana.*—1st, 2d, 3d, 16th, 18th, 19th, 21st, and 22d. *Mississippi.*—1st, 2d, 18th, and 26th. *Missouri.*—7th. *Nevada.*—Heavy "Pogonip" at Magill on the 13th. [See "Notes by the Editor."] *New Jersey.*—3d, 9th, 10th, 19th, and 21st. *Oklahoma.*—Pond Creek, 6th, fog, followed by high north wind. *Tennessee.*—3d, 6th, 7th, 8th, 16th, 18th, 19th, 26th, and 27th.

*Utah.*—At Provo very heavy fog on the night of the 28th.

SLEET.

Description of the more severe sleetstorms of the month is given under "Local storms." Sleet was reported as follows: 1st, Indiana, Nevada, New Jersey, and Ohio. 2d, Arizona, Illinois, Kentucky, Maryland, Missouri, and North Carolina. 3d, Arkansas, Kansas, Kentucky, Missouri, and Pennsylvania. 4th, Arkansas, Maryland, New Jersey, New York, Pennsylvania, and Virginia. 5th, New York. 6th, Arizona and California. 7th, Arizona, California, Nevada, New York, Ohio, Oregon, Pennsylvania, Texas, and Washington. 8th, California, Kansas, Maine, Massachusetts, Minnesota, Nevada, North Dakota, Ohio, Oregon, and Wisconsin. 9th, California, Connecticut, Indiana, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Jersey, New York, Ohio, Oregon, Pennsylvania, and Wisconsin. 10th, Arizona, Arkansas, California, Indiana, Massachusetts, Michigan, Missouri, New Hampshire, New York, and Ohio. 11th, Arizona, Arkansas, Indian Territory, Kansas, Kentucky, Maryland, Missouri, North Carolina, Oklahoma, Texas, and Virginia.

12th, Arizona, Arkansas, Connecticut, Delaware, District of Columbia, Illinois, Indiana, Kentucky, Maryland, Massachusetts, Missouri, Nevada, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Texas, Vermont, Virginia, and West Virginia. 13th, Mississippi, New Jersey, North Carolina, Ohio, Pennsylvania, and Texas. 14th, Indian Territory, Louisiana, Maryland, Mississippi, North Carolina, Ohio, South Carolina, Tennessee, Texas, Virginia, and West Virginia. 15th, Alabama, Arizona, California, Connecticut, Georgia, Maine, Maryland, Massachusetts, Mississippi, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Virginia, and Washington. 16th, California, Ohio, Oregon, South Dakota, and Virginia. 17th, California, Indiana, Michigan, Minnesota, Mississippi, Missouri, Ohio, South Dakota, and Washington. 18th, Maryland, New York, and Oregon. 19th, Maryland, Nevada, New Jersey, Oregon, Pennsylvania, and Tennessee.

20th, Nevada and Utah. 21st, Arkansas, Delaware, Indian Territory, Maryland, Mississippi, North Carolina, Tennessee, Texas, and Virginia. 22d, Alabama, Arkansas, Louisiana, Mississippi, Tennessee, Texas, and Virginia. 23d, Alabama, Arkansas, Georgia, Louisiana, Mississippi, South Carolina, and Texas. 24th, Alabama, Arkansas, Louisiana, Mississippi, North Carolina, Oregon, South Carolina, Tennessee, and Texas. 25th, Alabama, Delaware, District of Columbia, Georgia, Louisiana, Maryland, Mississippi, New Jersey, North Carolina, Pennsylvania, South Carolina, Tennessee, Virginia, Washington, and West Virginia. 26th, District of Columbia, Georgia, Maryland, Massachusetts, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Virginia, and West Virginia. 27th, Georgia and Ohio. 28th, Utah.

WET AND DRY PERIODS IN RELATION TO AGRICULTURE.

The Weather Crop Bulletin for the month of February shows that precipitation was in excess over a large portion of the United States, and that at the close of the month, not-

withstanding the heavy snowfall, there was practically no snow on the ground over the greater portion of the winter-wheat region. The following notes have been extracted from the monthly reports of the State Weather Services, and refer to the relation between precipitation and agriculture:

**Alabama.**—The weather for the month was generally unsettled; rainy periods were quite close together; on the 24th, hail and sleet; 25th, rain, sleet, hail, and snow; these conditions retarded plowing preparatory to early planting.

**Arizona.**—The amount of snow ranged from 24 inches at Flagstaff to a trace at Peoria; the total was unusually great, and has not been equaled in many years.

**Iowa.**—The precipitation on the 11th and 12th south of the Ohio and Missouri valleys was rain, and north of this snow, all of which will prove beneficial rather than injurious to agricultural interests.

**Louisiana.**—Precipitation was rather below the average in the northern half of the State, but with more than the usual number of rainy days, and farmers are considerably behind with their work. Abbeville: on the 20th to 22d rain came in floods; every bridge was washed away; the water was higher than for sixteen years; the month was very unfavorable for farm work.

**Mississippi.**—A general storm of snow and sleet on the 24th and 25th, and snow fell in all portions of the State; trees were covered with ice for two or three days in the northern and central districts; ice on the trees did considerable damage in breaking off limbs.

**New England.**—In northern New Hampshire an observer reports that wells and springs were never before known to be so low at this time of the year.

**Ohio.**—Between the 12th and 27th heavy snow fell over the State, affording good protection to the cereals in the ground. At the close of the month the wheat was generally in fair condition. The snowfall of the 12th and 13th was especially heavy over the middle and northern sections; that of the 25th was heaviest over the southern and southern portions of the middle sections. During the progress of these two storms all commercial business nearly ceased.

**South Carolina.**—Precipitation was well distributed over the entire State, with an average of ten rainy days; the principal precipitation occurred as rain on the 14th and 15th, and as rain, sleet, or snow on the 24th to 26th; the ground was not frozen when the snow and sleet began, nor did it freeze, and so was in the best possible condition to receive the utmost benefit from the gradual thawing and the subsequent absorption of the greater part of the snow and sleet.

**Utah.**—The deficiency of rainfall in the northern part of the State was not enough to spoil the prospect of an abundant water supply for the coming summer.

**Wisconsin.**—In the lumber districts of the north, on the 28th, the snow lay from 10 to 30 inches deep in the woods. At the close of the month the southern half of the State, containing nearly all the area of winter grains, was entirely bare of snow and the frost rapidly coming from the ground; conditions very unfavorable for crops, as considerable freezing weather must ensue before spring can permanently open.

WIND.

PREVAILING WINDS.

The prevailing winds for February, 1894, viz., those that were recorded most frequently at Weather Bureau stations, are shown in Table I, but are not given on Chart II, as has hitherto been the custom. The summary of State Weather Service reports gives the prevailing winds as recorded at voluntary stations in the respective States; these may be summarized as follows:

**North.**—Alabama, Arkansas, Kansas, Louisiana, Mississippi, Oklahoma, Tennessee, Texas, and Virginia.

**Northeast.**—None.

**East.**—None.

**Southeast.**—None.

**South.**—Washington.

**Southwest.**—Illinois, Michigan, Nevada, North Carolina, Ohio, South Carolina, and Wisconsin.

**West.**—California, Colorado, Idaho, West Virginia, and Wyoming.

**Northwest.**—Illinois, Indiana, Iowa, Kentucky, Maryland, Minnesota, Missouri, Nebraska, New England, New Jersey, New York, North Dakota, Pennsylvania, South Dakota, and Utah.

RESULTANT WINDS.

The resultants for the current month, as deduced from the hourly records of winds, by self-registers at 67 regular Weather Bureau stations, are given in Table VIII. Other resultants deduced from the personal observations made at 8 a. m. and 8 p. m. at all stations that appear on the morning and evening maps of the Weather Bureau are given in Table IX. These latter resultants are also shown graphically on Chart II, in connection with the isobars based on the same system of simultaneous observation; the small figure attached to each arrow shows the number of hours that this resultant prevailed, assuming each of the morning and evening observations to represent one hour's duration of a wind of average velocity; these figures (or the ratio between them and the total number of observations in this month) will indicate the extent to which winds from different directions counterbalanced each other. The actual north, south, east, and west components, on which these resultants are based, are given in detail in Table IX for convenience in making further studies.

During February the movement from the northwest has prevailed along the Atlantic coast, except southwest in Florida

and southern Georgia. The movement from the southwest has prevailed in the Lake region, and the movement from the southeast has prevailed over the northern plateau and north Pacific coast.

HIGH WINDS.

Wind velocities of 50 miles, or more, per hour were reported at regular stations of the Weather Bureau as follows. Maximum velocities are averages for 5 minutes; extreme velocities are gusts of shorter duration:

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
		<i>Miles.</i>				<i>Miles.</i>	
Amarillo, Tex. ....	8	60	w.	Fort Canby, Wash. ....	26	54	s.
Do .....	11	52	n.	Do .....	27	53	s.
Do .....	17	56	nw.	Keeler, Cal. ....	21	53	nw.
Block Island, R. I. ....	12	72	e.	Lexington, Ky. ....	12	80	ne.
Do .....	13	73	e.	Nantucket, Mass. ....	13	53	se.
Do .....	26	65	e.	Pikes Peak, Colo. ....	16	92	w.
Do .....	27	56	ne.	Do .....	17	91	nw.
Buffalo, N. Y. ....	10	58	w.	Saint Louis, Mo. ....	4	53	sw.
Cheyenne, Wyo. ....	17	50	nw.	Tatoosh Island, Wash. .	9	50	sw.
Chicago, Ill. ....	12	50	sw.	Do .....	7	62	sw.
Do .....	12	84	sw.	Do .....	14	52	s.
Do .....	16	50	sw.	Do .....	15	60	e.
Do .....	17	51	sw.	Do .....	19	72	sw.
Colorado Springs, Colo. .	8	55	nw.	Do .....	19	60	ne.
Do .....	16	59	w.	Toledo, Ohio .....	12	60	sw.
Do .....	20	64	w.	Tucson, Ariz. ....	10	60	sw.
Detroit, Mich. ....	10	57	sw.	Winnemucca, Nev. ....	11	55	s.
Eastport, Me. ....	15	50	se.	Do .....	17	58	sw.
Fort Canby, Wash. ....	4	60	s.	Do .....	18	72	sw.
Do .....	6	60	se.	Do .....	19	74	sw.
Do .....	7	58	se.	Woods Holl, Mass. ....	16	50	nw.
Do .....	11	52	e.	Do .....	23	58	nw.
Do .....	14	80	s.	Yuma, Ariz. ....	10	52	nw.

LOCAL STORMS.

**3d.**—Destructive local storms occurred in Georgia, Alabama, and Mississippi. At Atlanta, Ga., a gale of short duration began at 10.10 a. m., and reached a maximum velocity of 48 miles per hour at 10.35 a. m., accompanied by a heavy shower of rain for ten minutes; damage was done to fences and electric wires. In Alabama the windstorm was the most severe that has occurred in a number of years. At Irondale, Ala., showers, with gusts of wind, occurred from 6 to 7 p. m. At East Birmingham, about 4 miles west of Irondale, the storm moved due east, with a zigzag motion, in a path about 2 miles wide; a church was blown down and other damage done. At Gate City, a suburb of Birmingham, the railroad station and a church were blown down and sev-